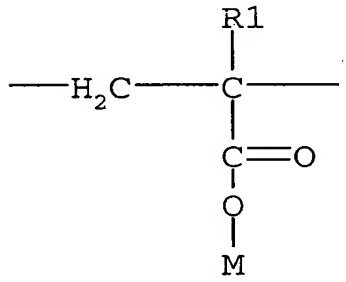
Claims

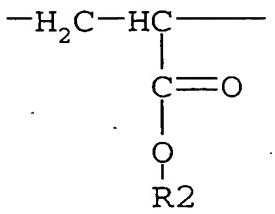
1. A polymer comprising side chains of which at least 10 weight-% can be cleaved in alkaline medium at a pH of from 8-14 at 20°C, said side chains being connected to the backbone of said polymer by ester and optionally amide and/or imide groups, whereby said polymer comprises

a mole-% of structural unit A of formula I



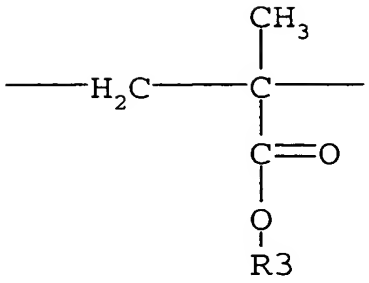
I

b mole-% of structrural unit B of formula II



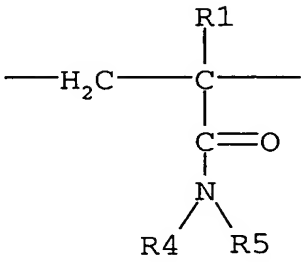
II

c mole-% of structural unit C of formula III



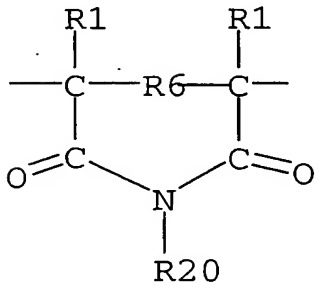
III

d mole-% of structural unit D of formula IV and



IV

e mole-% of structural unit E of formula V



V

wherein each R1 independently from each other represents a hydrogen atom or a methyl group or mixtures thereof;

M represents a hydrogen atom, a metallic cation, an ammonium or organic ammonium cation or mixtures thereof;

R2, R20 and R3 independently from each other represent a C_1-C_{12} alkyl- or cycloalkyl group, a C_2-C_{12} hydroxyalkyl group or $(R7O)_zR8$ in which O represents an oxygen atom, R7 represents a C_2-C_3 alkylene group or mixtures thereof, R8 represents a hydrogen atom, a C_1-C_{12} alkyl- or cycloalkyl group, a C_2-C_{12} hydroxyalkyl goup, or an unsubstituted or substituted aryl group and z represents a number from 1-250, whereby R2, R3 and R20 may be mixtures thereof, and whereby preferably at least 0.5 mole-% more preferred 5-100 mole-% and most preferred 50-100 mole-% of the residues R2 are $-(R^7O)_zR^8$ with R^7, z and R^8 as defined above

R4 and R5 represent independently from each other a hydrogen atom or a substituent as defined for R2, and R4 and R5 may form together a ring structure of which N is part of, this ring structure may further contain other hetero atoms like another nitrogen, sulfur or oxygen atom, or mixtures thereof;

R6 is single bond or a methylene group,

a, b, c, d and e represent numbers where the sum of a+b+c+d+e=100 and b is a number from 10-90, c is a number from 0-85, d is a number from 0-50 and e is a number from 0-10 and a is 100 - (b+c+d+e), whereby a is at least 5, and wherein the sum of e and d preferably is a value of more than 0, more preferably between 0.01 and 50, and most preferably between 0.01 and 2.

2. The polymer of claim 1 that contains side chains of formula VI which are connected to the backbone by amide or ester groups,

$$-(A^1O)_x-(B^1O)_y-R9 \qquad \text{VI}$$

and wherein O represents an oxygen atom and A^1 and B^1 represent independently from each other a C_2-C_3 alkylene group and $A^1 \neq B^1$ and

R9 represents a hydrogen atom, a C_1-C_{12} alkyl- or cycloalkyl group, a C_2-C_{12} hydroxyalkyl group, or an unsubstituted or substituted aryl group and x represents a number from 1-250 and y represents a number from 0-250 and the sum of x and y is a number of 1-250 and the order (A^1O) and (B^1O) is random, alternating or blockwise, and wherein said side chains of formula VI, are preferably present in an amount of more than 0.5 weight-%, more preferred 5-99 weight-% and most preferred 50-99 weight-% of the polymer.

3. The polymer of claim 1 obtainable or produced by a copolymerising reaction of (meth)acrylic monomers.

4. The polymer of claim 1 obtainable or produced by polymer analogues reaction of esterification and optionally amidation and/or imidation of a polycarboxylic acid.

5. The polymer of claim 1 comprising 5-90 mol %, preferably 20-80 mol % of structural unit A of formula I; and 10-90 mole-%, preferably 15-70 mole-% of structural unit B of formula II; and 0-85 mol % of structural unit C of formula III; and 0-50 mole %, preferably 0-20 mole% of structural unit D of formula IV; and 0-10 mole-% of structural unit E of formula V.

6. The polymer of claim 1 wherein at least 15% of the side groups are cleaved at a pH higher than 12.5 at 22°C within 2 hours.

7. An admixture for reducing loss of fluidity of cementitious compositions, mortars and concrete, said admixture comprising at least one polymer A and at least one polymer of claim 1 wherein polymer A is a cement dispersing agent.

8. The admixture of claim 7 wherein polymer A is a cement dispersing agent selected from the group consisting of sulfonated melamine condensates, sulfonated naphthalene condensates, lignosulfonates, substituted maleamid-vinyl-copolymers and acrylic or methacrylic copolymers with polyalkyleneoxide side chains, or mixtures thereof.

9. The admixture of claim 7 wherein the solid weight ratio of polymers A to the polymers of claim 1 is from 0.1:10-10:1, preferably from 1:10-10:1.

10. A mortar, concrete or cementitious binder comprising the polymer of claim 1.

11. A mortar, concrete or cementitious binder comprising the admixture of claim 7.

12. The mortar, concrete or cementitious binder of claim 11 comprising the admixture in an amount of 0.01 to 10 % by weight of the binder, said mortar or concrete having a unit content of binder composition of cement or a mixture of cement and latent hydraulic or inert microscopic powder of 100 to 800 kg/m^3, preferably of 250 to 650 kg/m^3.

13. A method for producing a mortar, concrete or cementitious binder of claim 11, wherein the polymer of claim 1 and polymer A are added separately or premixed as admixture in solid or liquid form.